Reviewer's report


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Reviewer: Rachel Huxley

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- Minor Essential Revisions

1. It would be helpful if the authors could compare these data on change in the prevalence of physical activity with NHANES data that would seem to indicate no change in physical activity between 2001-2006 (Carlson et al. 2006). In that paper the authors discuss how differences in the surveillance systems yield different physical activity trends. In particular, and of relevance to this current report, the BRFSS reports the highest level of physical activity (compared with NHANES and NHIS) possibly because it includes more domains of physical activity than other surveillance systems. Moreover, it has been suggested that survey questions that require respondents to recall participation across multiple domains of physical activity may overestimate their physical activity level. Another difference that should be mentioned in the limitations section is that the BRFSS questionnaire is a telephone survey (unlike NHANES which was administered by questionnaire) which could give rise to any number of biases. In particular, the sampling frame of the BRFSS excludes households without landlines, and if the prevalence of landline usage declined over time then this raises concerns about non-response and generalizability.

2. The authors should be more cautious when stating in the results that “there was a poor correlation between level of physical activity and obesity in the US counties”. It is entirely possible that uncorrected measurement error in ascertainment of BMI (based as it was on self-report, that was corrected using NHANES adjustment) and physical activity could have attenuated the association. It is also possible that the data mask different patterns in rural and urban areas (the authors themselves allude to the possibility that in the Discussion that “the behaviors of residents in urban settings are different from those in rural areas”. In a recent paper from NHANES (Befort et al. 2012 Prevalence of obesity among adults from rural and urban areas of the United States: Findings from NHANES 2005-2008. The Journal of Rural Health) the prevalence of obesity was much higher (39.6%) among rural compared with urban populations (33.4%) and that there was an interaction between obesity with activity level by area such that being physically active was significantly associated with a reduced prevalence of obesity in urban but not rural areas.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests